REMARKS

Claims 1-5, 7-19, and 21-66 have been examined. All of the claims have been rejected as unpatentable over the prior art of record. Specifically, claims 1-5, 9-11, and 21-66 are rejected as anticipated by Applicants' Admitted Prior Art of page 1, lines 8-22 of the specification (herein "AAPA"), and claims 1-5, 7-19, and 21-66 are rejected as obvious over "Introduction To Algorithms" by Cormen, et al. (herein "CLR") in view of "Indexing Large Metric Spaces for Similarity Search Queries" by Bozkaya et al. (herein "BT").

Claims 1-5, 7-19, and 21-66 have been objected to for minor formalities. In response, Applicants amended the claims to correct the minor formalities indicated in the Office Action. Accordingly, Applicants request that the objection to claims 1-5, 7-19, and 21-66 be withdrawn.

The specification was objected to for minor formalities. In response, Applicants amended the specification to correct the minor formalities indicated in the Office Action. Accordingly, Applicants request that the objection to the specification be withdrawn.

Claims 1-5, 7-19, and 21-66 were rejected under 35 U.S.C. § 112, first paragraph and second paragraph. In response, Applicants amended claims 1, 7-9, 11, 13, 15, 21-23, 25, 27, 44, 46, 63, and 65 to more clearly recite how the median and the descendent nodes are entered on the binary tree and claims 3-4, 17-18, 29-30, 34-35, 39-40, 48-49, 53-54, and 58-59 to correct other informalities found by the Applicants. Accordingly, Applicants request that the Section 112 rejections to claims 1-5, 7-19, and 21-66 be withdrawn.

AAPA does not disclose any method of creating a binary tree

Claims 1-5, 7-19, and 21-66 have been rejected under 35 U.S.C. § 102 (a) as being anticipated by AAPA. In response, Applicants amended claims 1, 7-9, 11, 13, 15, 21-23, 25, 27, 44, 46, 63, and 65 to more clearly recite how the median and the descendent nodes are entered on the binary tree. However, Applicants traverse the Section 102 rejection, because the Office Action has not sufficiently shown how each claim element is disclosed by the AAPA.

In particular, contrary to the assertion in the Office Action, AAPA does not disclose any of the steps recited in the claims, because it is simply a description of a binary tree. However, a simple description of a binary tree having parent nodes and child nodes in the AAPA does not actually explain how such a balanced binary tree is created. The claims do not broadly recite a binary tree. This is all that the AAPA discloses: a simple definition of a binary tree. The AAPA does not disclose or teach any methods of how such a binary tree may be created. Thus, contrary to the Office Action, it is clear that the AAPA does not disclose any of the features recited in the claims.

Moreover, to the extent that the dependent claims depend from independent claims 1, 7-9, 11, 13, 15, 21-23, 25, 27, 44, 46, 63, and 65, these dependent claims are patentable for at least the reasons set forth above with regard to their corresponding independent claims. Nevertheless, Applicants reserve the right to present further arguments in the future with regard to the dependent claims in the event that the independent claims are found to be unpatentable. Accordingly, Applicants request that the Section 102 rejection to claims 1-5, 7-19, and 21-66 be withdrawn. If the Office maintains the Section 102 rejection, Applicants request that the Office clarify by including page and line numbers as they relate to each element of the claims.

The cited art teaches random selection of top node

Claims 1-5, 7-19, and 21-66 are rejected as obvious over CLR in view of BT. In response, Applicants amended claims 1, 7-9, 11, 13, 15, 21-23, 25, 27, 44, 46, 63, and 65 to more clearly recite how the median and the descendent nodes are entered on the binary tree. However, Applicants traverse the Section 103 rejection, because the cited references do not, alone or combined, disclose a method for creating a binary tree that chooses either a right or left element of two middle values of a group or list as a parent node when the list or group has an even number of elements as recited in the claims.

In BT, an arbitrary element S_{v1} is randomly picked as the first vantage point. "3.1) Let S_{v1} be an arbitrary object from S. S_{v1} is the first vantage point." *See e.g.*, BT, page 10. From S_{v1}, a distance between S_{v1} and an element in the lists is calculated for each element. "3.3) Calculate all $d(S_i, S_{v1})$ where $S_i \in S$." *See e.g.*, BT, page 10. These

multiple obtained distances are then ordered with respect to their distances from S_{v1} and broken into two equal lists by a median of these multiple distances. "3.4) Order the objects in S with respect to their distances from S_{v1}. M1=median of $\{d(Si, Sv1) \mid S_i \in S\}$. Break this list into 2 lists of equal cardinality at the median." *See e.g.*, BT, page 10. Based on the disclosure of BT, a drastically different binary tree from that of the present invention would be generated. For example, given a list with three elements A, B, and C, using BT's iteration, C can be chosen as the arbitrary top node, and the child nodes would then be A and B. In contrast, according to the recited claims, B must be chosen as the top node for this list, which results in the A and C elements as the child node. From this simple example, the resultant binary tree of BT is clearly different from that of the binary tree generated from the recited claims.

Moreover, the present claims do not require any calculation of distances or median. In fact, the present invention does not require any mathematical calculation at all. The present invention simply picks a value either to the left or to the right of the two middle values in the list, which is a much simpler algorithm than that of BT, because no mathematical calculation is required. BT, on the other hand, mathematically calculates a median based on a distance between an arbitrary element in the list (e.g., S_{v1}) and another element in the list (e.g., S_{vi}). For readability of the BT reference, Applicants attach the section entitled, "Construction of mvp-trees" of BT located on pages 10 and 11 (Attachment A). Thus, for all these reasons, the Office Action has failed to show how the cited references, alone or combined, disclose a method for creating a binary tree that chooses either a right or left element of two middle values of a group or list as a parent node when the list or group has an even number of elements as recited in the independent claims.

Moreover, to the extent that the dependent claims depend from independent claims 1, 7-9, 11, 13, 15, 21-23, 25, 27, 44, 46, 63, and 65, these dependent claims are patentable for at least the reasons set forth above with regard to their corresponding independent claims. Nevertheless, Applicants reserve the right to present further arguments in the future with regard to the dependent claims in the event that the independent claims are found to be unpatentable. Accordingly, Applicants request that

the Section 103 rejection to claims 1-5, 7-19, and 21-66 be withdrawn. To the extent that the rejection is maintained, Applicants request that the Office clarify how the cited references include the median as recited in the claims.

CONCLUSION

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

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